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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,001	10/20/2003	Gayatri Vyas	8540G-236COA	4101

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,001

Applicant(s)

VYAS ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) 23-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/004,322.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/20/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in the reply filed on 07/20/06 is acknowledged. *It is noted that applicant has withdrawn the non-elected invention of Group II (Claims 26-28 and 54) without prejudice.*
2. The restriction requirement for Group III (claims 31-42) with respect to Group I is herein withdrawn.
3. The election of species between Species I and Species II as identified in the prior office action is moot in view of the amendment to claim 23 which deleted the mutually exclusive embodiment of the electrolytic cell.
4. Applicant's election with traverse of Sub-species 2 (the design of Figure 6 corresponding to Claims 1-22 wherein Claims 1-5 are generic) in the reply filed on 07/20/06 is acknowledged. The traversal is on the ground(s) that "*Applicant's respectfully disagree with the Examiner's position that Sub-species 1-3 are mutually exclusive embodiments...*" and "*Figure 6 represents an embodiment in which the coating (94) may be formed on specific surfaces...whereas Figures 5 and 7 illustrate an embodiment where one or more surfaces coated*". This is not found persuasive because, as best understood by the examiner and admitted by the applicant in the as-filed specification, each of Figures 5, 6 and 7 represents different embodiments, each one comprising specific characteristics, materials or mechanical features containing multiple, several, numerous embodiments (represented by each of the Figures above). Therefore, the as-filed disclosure encompasses different and separated embodiments which are mutually exclusive. Applicant's attention is particularly directed to MPEP 809.02(a) which indicates how to identify

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species by illustrative figures, examples, mechanical means, particular materials, or other

distinguishing characteristics. One more point, applicant has not indicated that they all

correspond to obvious variants, therefore, applicant do not believe they are obvious variants so as

to formally constitute a single inventive concept per se. Rather, it seems they relate to multiple

inventive concepts encompassed by distinct embodiments. Additionally, in response to the

Election of Species based upon the Sub-species, applicant clearly identified specific claims

(Claims 1-22) readable on the elected species (See page 14 of the 07/20/06 communication).

Thus, this is further evidence that certain claims (all claims of Group I but claims 1-22) do not

circumscribe the subject matter of Sub-Species 2. Accordingly, serious burden would be raised if

the search of such different species was made as required for the separate, distinct and mutually

exclusive species.

The requirement is still deemed proper and is therefore made **FINAL**.

Priority

5. This application is a continuation of Application S/N 10/087677 filed on 03/01/02 which is a continuation Application No. 10/004322, filed 10/25/01.

6. Acknowledgment is made of applicant's claim for foreign priority under 35

U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/004322, filed on 10/25/01.

Information Disclosure Statement

7. The information disclosure statement (IDS) submitted on 10/20/03 was considered by the examiner.

Drawings

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “102” has been used to designate both “thin substrate sheet” and “thin barrier sheet”. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

9. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
10. The disclosure is objected to because of the following informalities: the current status (*whether abandoned, or patented and its patent #*) of all parent applications should be updated. Neither the first paragraph of the specification (as commonly presented) nor the Application Data Sheet provide this information. Appropriate correction is required.
11. The disclosure is objected to because it fails to comply with the enablement requirement. In paragraph 0092, the specification discloses depositing a F-doped tin oxide film having a chemical formula as follows: SnO_{2-x}F . However, absent is the specific range for molar amount

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“x”. That is, the specification as filed does not define the value of “x”. Therefore, the specific composition of the doped-tin oxide is indeterminate. As such, the specification as filed contains subject matter not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Care should be exercised to avoid the introduction of NEW MATTER when correcting this issue.

Claim Objections

12. Claim 15 is objected to because of the following informalities: “the said substrate” in line 1 should be amended to read either “the substrate” or “said substrate”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

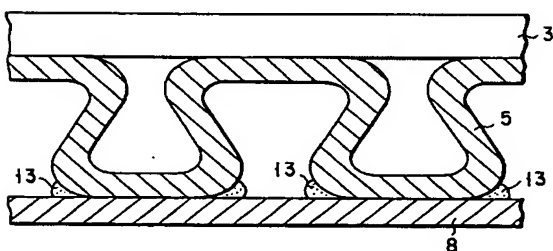
14. Claims 1, 3, 13 and 15-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Tateishi et al 5643690.

The present claims concerns an electrochemical cell wherein the disclosed inventive concept comprises the specific metal oxide coating.

As to claim 1:

Tateishi et al divulge a fuel cell provided with an oxidizing gas side-collector plate (*the electrically conductive contact element facing the electrode*) having on it surface a composite oxide layer excellent in electric conductivity and corrosion resistance (ABSTRACT/ CLAIM 1). The collector plate disposed on the cathode side and comprises a main body made of SS, an Fe-Cr-Ni based alloy layer covering surface thereof; and a nickel-ferrite based composite oxide layer formed on a surface of the Fe-Cr-Ni alloy layer (ABSTRACT/ CLAIM 1).

Figure 2 below illustrates cathode 3, the specified collector plate 5 and interconnect 8:



F I G. 2

As to claims 3 and 15:

The collector plate has a main body made of SS, an Fe-Cr-Ni based alloy layer covering surface thereof; and a nickel-ferrite based composite oxide layer formed on a surface of the Fe-Cr-Ni alloy layer (ABSTRACT/ CLAIM 1). The composite oxide layer excellent in electric conductivity and corrosion resistance (ABSTRACT/ CLAIM 1).

As to claim 13:

Collector plate 5 serves to feed gas therethrough (COL 8, lines 65-67/ See FIGURE 2).

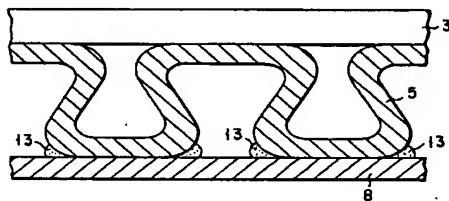
As to claim 16:

Disclosed is the inclusion of an Fe-Cr-Ni based alloy layer covering surface thereof (ABSTRACT/ CLAIM 1). *It is contended that this specific layer serves as the electrically conductive open cell foam layer.*

As to claims 17-21:

Collector plate 5 serves to feed gas therethrough (COL 8, lines 65-67/ See FIGURE 2).

Figure 2 depicts collector plate 5 having first and second fluid distribution surfaces (opposed surfaces). This configuration encompasses distributing grooves (open spaces) and lands (surfaces contacting cathode 3 and/or interconnect 8)..



F I G. 2

Thus, the present claims are anticipated.

15. (*At least*) Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese publication JP 08-185870 (herein called the JP'870).

The JP'870 discloses a separator for a solid electrolytic fuel cell composed of a cermet material consisting of metal alloy material and a metal oxide protection film (ABSTRACT).

Figure 1 illustrates the structure of the fuel cell including the separators 14, and end plates 15-16 facing the electrode. *The electrically conductive property of the metal oxide film is inherent to the composition itself.*

Thus, the present claim is anticipated.

16. *(At least)* Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Gyoten et al 7005205.

Goyten et al disclose a polymer electrolyte fuel cell having an electrolyte membrane electrode assembly and is characterized by having at least one electroconductive separator having a metal substrate and an electroconductive resin layer thereon and contacting the electrolyte membrane assembly (ABSTRACT) and including a metal oxide layer therebetween (EMBODIED EXAMPLE 6, COL 8, lines 35-52). *The electrically conductive property of the metal oxide film is inherent to the composition itself.*

Thus, the present claim is anticipated.

17. *(At least)* Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hwang et al 6090228.

Hwang et al disclose a fuel cell (TITLE) including a separator made of SS base material and further including a coating comprising at least a thin Al-oxide film thereon (ABSTRACT/COL 3, lines 64-66). **Figure 1** illustrates separators 40a, 40b facing anode electrode 10a or cathode electrode 10b (COL 1, lines 28-38/ FIGURE 1). *The electrically conductive property of the metal oxide film is inherent to the composition itself.*

Thus, the present claim is anticipated.

18. *(At least)* Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al 5963417.

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Anderson et al disclose an electrochemical capacitor (*it is noted that an electrochemical cell broadly encompasses an electrochemical capacitor*) (TITLE/ABSTRACT) including a separator contacting respective electrodes wherein the separator can be a metal oxide film (paragraph bridging COL 10-11/CLAIMS 1 and 8). *The electrically conductive property of the metal oxide film is inherent to the composition itself. In the absence of a specifically defined electrical conductivity, it is noted that any material does exhibit electrical conductivity, whether high or low, irrespective of its nature or composition. Note that electrical conductivity is a quantifiable amount, and even though a material may exhibit a low degree of quantified electrical conductivity, such a quantified magnitude represents a discrete value of electrical conduction, even if such a value is zero (0).*

Thus, the present claim is anticipated.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

21. Claims 2, 14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateishi et al 5643690 as applied to claims 1 and 13 above, and further in view of Gordon 4146657.

Tateishi et al is applied, argued and incorporated herein for the reasons expressed above. However, the preceding prior art does not expressly disclose the specific fluorine doped tin oxide film.

Gordon disclose electrically conductive films of tin oxide comprising fluorine (ABSTRACT/COL 1, lines 5-25); fluorine doped stannic oxide (COL 2, lines 38-42). The coating is an electrically conductive coating (COL 1, lines 24-28/COL 2, lines 38-42) finding application in electrochemical systems or environments (COL 1, lines 12-18). The film material also exhibits good match of thermal expansion coefficient (COL 9, lines 33-42). The film includes 1-2.5 % of fluorine (COL 7, lines 10-12).

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the field of invention at the time the invention was made to use the specific fluorine doped tin oxide of Gordon in the electrochemical cell of Tateishi et al because Gordon directly teaches that such specific oxide films find application in electrochemical systems or environments due to their high electrical conductivity and suitable thermal expansion coefficient.

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22. Claims 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateishi et al 5643690 as applied to claim 1 above, and further in view of Applicant's Admitted Prior Art (heretofore 'the AAPA').

Tateishi et al is applied, argued and incorporated herein for the reasons expressed above.

As to claims 9-10:

Tateishi et al further disclose the main body of the collector plate is made of SS, an Fe-Cr-Ni based alloy layer covering surface thereof; and a nickel-ferrite based composite oxide layer formed on a surface of the Fe-Cr-Ni alloy layer (ABSTRACT/ CLAIM 1).

As to claim 11:

As to the method limitation, i.e. the welded or braised metal sheet, it is noted that a method limitation incorporated into a product claim does not patentable distinguish the product because what is given patentably consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of a product is independent of how it was made.

However, the preceding prior art does not expressly disclose the specific particle-binder matrix or graphite-filler-matrix substrates; and the specific conductive open cell foam layer.

As to claims 4-5 and 12:

The AAPA discloses that substrate forming the contact element comprises an electrically conductive composite material being a polymer having conductive powder embedded therein, wherein the conductive particles are typically graphite carbon or metal (*Applicant's specification at paragraphs 0076*). Further disclosed is the inclusion of one or more layers disposed between

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the coating and the substrate, or the substrate itself having multiple layers (*Applicant's specification at paragraphs 0075*).

As to claims 6-8:

The AAPA mentions the use of a bipolar plate featuring a thin barrier sheet including foam and having a thickness which is being attached by welding or brazing; and forming fluid flow fields. Such a foam has opposed surfaces, is electrically conductive; it can be prepared as metal foams or carbon-based graphite foams (*Applicant's specification at paragraph 0077*).

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the field of invention at the time the invention was made to use the specific particle-binder matrix or graphite-filler-matrix substrates of the AAPA in the electrochemical cell of Tateishi et al as the AAPA discloses such specific substrates enhance electrical contact between the composite element and the next adjacent fuel cell element. Thus, electrical conductivity and contact is improved.

With respect to the specific conductive open cell foam layer, it would have been obvious to a person possessing a level of ordinary skill in the field of invention at the time the invention was made to use the specific conductive open cell foam layer of the AAPA in the electrochemical cell of Tateishi et al as the AAPA teaches that such a foam layer forms an electrically conductive element. Thus, electrical conductivity and contact is improved.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Raymond Alejandro
Primary Examiner
Art Unit 1745



RAYMOND ALEJANDRO
PRIMARY EXAMINER